



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

APPEAL BRIEF FOR THE APPELLANT

Ex parte Makoto TOMIOKA et al. (Applicant)

RIGID VIDEO-ENDOSCOPE SYSTEM

Serial Number: 09/893,677

Filed: June 29, 2001

Appeal No.:

Group Art Unit: 2621

Examiner: David J. Czekaj

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March 27, 2007



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the Application of: **Makoto TOMIOKA
et al.**

**Appeal No.: Unassigned
Group Art Unit: 2621**

Application Number: **09/893,677**

Examiner: **David J. Czekaj**

Filed: **June 29, 2001**

Confirmation Number: **9414**

For: **RIGID VIDEO-ENDOSCOPE SYSTEM**

Attorney Docket Number: **010680**
Customer Number: **38834**

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

March 27, 2007

Sir:

Applicants appeal the July 31, 2006 Final rejection of claims 1-18.

Following the Notice of Appeal filed on December 29, 2006, the following is the
Applicants (now referred to hereinbelow as "Appellants") Appeal Brief.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the subject application, which is:

Olympus Optical Co., LTD, 43-2 Hatagaya 2-chome, Shibuya-Ku, Tokyo, Japan by an
assignment recorded in the U.S. Patent and Trademark Office on June 29, 2001, at Reel 011960,
Frame 0765.

II. RELATED APPEALS AND INTERFERENCES

Appellant knows of no other appeals or interference proceedings related to the present appeal.

III. STATUS OF CLAIMS

Pending claims 1-18 stand rejected. Claim 19 has been cancelled. No claims have been allowed or objected to. The claims on appeal are claims 1-18.

IV. STATUS OF AMENDMENTS

An Amendment was filed under 37 CFR 1.111 on October 29, 2004 in which claims 1, 2, 6 and 10 were amended. An Amendment was filed under 37 CFR 1.116 on July 20, 2005 in which claim 1 was amended and new claim 19 was added. An Amendment was filed under 37 CFR 1.111 on February 28, 2006 in which claims 1 - 4, 6, 10, 12 and 13 were amended. Each of these amendments has been entered.

An Amendment was filed under 37 CFR 1.116 on October 4, 2006 in which claim 1 was amended and claim 19 was cancelled. It is respectfully submitted that in item 7 of the Advisory Action mailed December 1, 2006 it is indicated that "for purposes of appeal, the proposed amendments will be entered." As such, entry of the Amendment filed under 37 CFR 1.116 on October 4, 2006 is respectfully requested.

The list of claims in the Claim Appendix includes the claims as last amended in this Amendment filed October 4, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to a rigid video-endoscope system. With respect to claim 1, a rigid video-endoscope system (see, *e.g.*, the rigid video-endoscope system in Fig. 3) including a front-end insertion section (see, *e.g.*, front-end insertion section 100 in Fig. 3) and a camera head (see, *e.g.*, camera head 500 in Fig. 3), said rigid endoscope system comprising:

an objective optical system that forms an image of an object (see, *e.g.*, objective lens 1 in Fig. 3; and page 10, lines 15-17), a relay optical system that includes a plurality of lens units and relays the image formed by the objective optical system (see, *e.g.*, relay optical system 2, relay lens 2-1 to 2-3 in Fig. 3), an imaging optical system that forms an image of the relayed image (see, *e.g.*, imaging lens 5 in Fig. 3) and a solid-state image sensor that receives the image formed by the imaging optical system (see, *e.g.*, solid-state image sensor 6 in Fig. 3), and

wherein said camera head includes a part of said relay optical system (see, *e.g.*, the rear half section 2-3-2 of the third relay lens 2-3 in Fig. 3), said imaging optical system and said solid-stage image sensor, and

the relayed image (see, *e.g.*, image Q4 in Fig. 3) is formed between the relay optical system and the imaging optical system in the camera head, and

wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system (see, *e.g.*, relay lens 2-1, 2-2 and the front half section 2-3-1 of the relay lens 2-3); and

the insertion section and camera head are detachable (see, *e.g.*, page 10, lines 1-2).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. The rejection of claim 1 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.
- B. The rejection of claims 1 and 3-19 under 35 USC 103(a) as being unpatentable over Igarashi (U.S. Patent No. 5,902,232) in view of Takahashi et al. (U.S. Patent No. 5,588,948).
- C. The rejection of claim 2 under 35 USC. §103(a) as being unpatentable over Igarashi (U.S. Patent No. 5,902,232) in view of Takahashi et al. (US Patent No. 5,588,948) and Igarashi (U.S. Patent No. 5,954,634).

VII. ARGUMENTS

- A. **Rejection of claim 1 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.**

Independent Claim 1:

It is respectfully submitted that claim 1 was amended in the Amendment filed October 4, 2006 to overcome this rejection. More specifically, claim 1 was amended to clarify that the solid-state image sensor is included in the camera head and not in the front-end insertion section, as noted by the Examiner in the Office Action of July 31, 2006. Further, as discussed above,

entry of the Amendment filed under 37 CFR 1.116 on October 4, 2006 has been respectfully requested. Accordingly, withdrawal of this rejection is respectfully requested.

B. Rejection of claims 1 and 3-19 under 35 USC 103(a) as being unpatentable over Igarashi (U.S. Patent No. 5,902,232) in view of Takahashi et al. (U.S. Patent No. 5,588,948, or record).

Claims 1 and 3-18:

Independent claim 1 calls *wherein said camera head includes a part of said relay optical system, said imaging optical system and said solid-stage image sensor, and the relayed image is formed between the relay optical system and the imaging optical system in the camera head, and wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system.*

For example, as shown in Fig. 3 of the present application, the camera head 500 includes a part of the relay optical system, *e.g.*, the rear half section 2-3-2 of the third relay lens 2-3, the imaging optical system 5 and the solid-stage image sensor 6. Also, the relayed image Q4 in Fig. 3 is formed between the relay optical system 2 and the imaging optical system in the camera head 500, wherein the front-end insertion section 100 includes the objective optical system and a remaining part of the relay optical system (*e.g.*, relay lens 2-1, 2-2 and the front half section 2-3-1 of the relay lens 2-3).

With regard to Igarashi, it is submitted that in Fig. 12 of Igarashi, the secondary image I_2 is formed in the grip section 5 and not in the TV camera head 6. In addition, it is submitted that Fig. 2 of Igarashi fails to even include a relay lens system. More specifically, according to col. 8, lines 16-37 of Igarashi:

FIG. 2 shows an embodiment of the non-flexible endoscope according to the present invention. ... Rays coming from this image are incident directly, or **without passing through a relay lens system**, onto the objective lens disposed in the vicinity of the near end of the insert section. (Emphasis added.)

Finally, it is submitted that while in Figs. 13A-13C the second image I_2 appears to be positioned between the relay system R_1 and the eyepiece section E, Figs. 13A-13C fail to disclose a camera head which includes a part of the relay optical system. As such, Figs. 2, 12 or 13 of Igarashi relied upon by the Examiner each fail to disclose a camera head which includes a part of the relay optical system.

Accordingly, it is respectfully submitted that Igarashi fails to disclose or fairly suggest these feature of claim 1 concerning *wherein said camera head includes a part of said relay optical system, said imaging optical system and said solid-stage image sensor, and the relayed image is formed between the relay optical system and the imaging optical system in the camera head, and wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system.*

With regard to the secondary reference of Takahashi, it is noted that such reference discloses in col. 4, lines 14-25 the following:

In the inserting section 2 of the stereoscopic rigid-type endoscope 1, an objective lens system 5 and a relay lens section 6 are arranged along an optical axis, in that order from the front end, to form a relay lens system 7, which is supported by a first support means. The objective lens system 5 is composed of a plurality of lenses, and forms an image of the object at the front end of the relay lens section 6, which is an image transmission means composed of a plurality of lens groups. This image is transmitted through the lens groups to a pupil dividing means arranged in the operating/holding section 3. In this embodiment, the pupil dividing means consists of a pupil dividing prism 8.

In view of the above-noted disclosure, it is submitted that the relay lens section 6 and relay lens system 7 are included completely in the inserting section 2 of the stereoscopic rigid-type endoscope 1. In other words, the operating/holding section 3 does **not** include a part of the relay lens section 6. As such, it is submitted that Takahashi does not teach a camera head that includes a part of the relay optical system, since the relay lens section 6 and relay lens system 7 are instead included in the inserting section 2 of the stereoscopic rigid-type endoscope 1.

Accordingly, it is submitted that Takahashi fails to disclose or fairly suggest the feature of claim 1 regarding *wherein said camera head includes a part of said relay optical system, said imaging optical system and said solid-stage image sensor.*

Further, since the relay lens section 6 and relay lens system 7 are completely included in the inserting section 2 of the stereoscopic rigid-type endoscope 1, Takahashi also fails to disclose or fairly suggest that the inserting section 2 includes a **remaining part** of the relay lens section 6 and relay lens system 7. Accordingly, it is submitted that Takahashi fails to disclose or fairly suggest the feature of claim 1 regarding *wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system.*

Moreover, the image formed by the relay lens 6 is not inside the operation/holding section

3. As noted above, in Fig. 1 of Takahashi, the relay lens 6 is in the insertion section 2 and the image of an object is formed in the last lens of the relay lens. Further, while Lens 9a (or 9b) forms an image of the image on the CCD 11a (or 11b), these lenses correspond to the imaging optical system in claim 1, and are not a part of the relay optical system.

Accordingly, it is submitted that Takahashi fails to disclose or fairly suggest the feature of claim 1 regarding *the relayed image is formed between the relay optical system and the imaging optical system in the camera head*.

The Examiner also asserts in lines 7-12 of page 4 of the Action that:

Since the relay optical system can be put together in many different methods including the method used in Igarashi (US 5,902,232), it would have been obvious to one of ordinary skill to, as long as the method included a camera head and relay optical lens system, include the relay optical system with the camera head in any order or method to use the same relay optical system and be able to remove a front-end insertion section.

However, as discussed above, neither reference, Igarashi and Takahashi, discloses or provide any suggest concerning including part of the relay optical system in a camera head. As such, it is submitted that the Examiner has failed to provide proper motivation for one of ordinary skill in the art to include part of a relay optical system in a camera head, and instead, the Examiner is merely relying on the teaching provided in Applicant's own disclosure, which constitutes impermissible hindsight.

Moreover, even if, assuming *arguendo*, Igarashi and Takahashi can be combined in the manner suggest by the Examiner, such combination would still fail to disclose or fairly suggest the features of claim 1 concerning *wherein said camera head includes a part of said relay optical system, said imaging optical system and said solid-stage image sensor, and the relayed image is formed between the relay optical system and the imaging optical system in the camera head, and wherein said front-end insertion section includes the objective optical system an, a remaining part of the relay optical system; and the insertion section and camera head are detachable.*

Section 2143 of the MPEP has specifically stated that:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 466, 20 USPQ2d 1438 (Fed. Cir. 1991).”

For at least these reasons, it is submitted that the Examiner has failed to establish a *prima facie* case of obviousness and therefore the obviousness rejection of claims 1 and 3-18 should be withdrawn.

C. Rejection of claim 2 under 35 USC. §103(a) as being unpatentable over Igarashi (U.S. Patent No. 5,902,232) in view of Takahashi et al. (US Patent No. 5,588,948) and Igarashi (U.S. Patent No. 5,954,634, of record).

Claim 2:

Claim 2 recites *wherein said camera head including a view field mask, wherein said view field mask, said imaging optical system and said solid-state image sensor are constructed to be integrally moved along the optical axis in a focusing operation.*

Section 2143 of the MPEP has specifically stated that:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 466, 20 USPQ2d 1438 (Fed. Cir. 1991).”

It is respectfully submitted that none of the applied references disclose or fairly suggest, singly or in combination, the features of claim 2 concerning *wherein said camera head including a view field mask, wherein said view field mask, said imaging optical system and said solid-state image sensor are constructed to be integrally moved along the optical axis in a focusing operation.*

For at least these reasons, it is submitted that the Examiner has failed to establish a *prima facie* case of obviousness and therefore the obviousness rejection of claim 2 should be withdrawn.

VIII. CONCLUSION

For the above reasons, Appellants request that the Board of Patent Appeals and Interferences reverse the Examiner's rejections of claims 1-18.

In the event this paper is not timely filed, appellants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 50-2866, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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TEB

Enclosures: Claims appendix
Evidence appendix
Related proceedings appendix

CLAIMS APPENDIX

Claim 1 (Previously Presented): A rigid video-endoscope system including a front-end insertion section and a camera head, said rigid endoscope system comprising:

an objective optical system that forms an image of an object, a relay optical system that includes a plurality of lens units and relays the image formed by the objective optical system, an imaging optical system that forms an image of the relayed image and a solid-state image sensor that receives the image formed by the imaging optical system, and

wherein said camera head includes a part of said relay optical system, said imaging optical system and said solid-stage image sensor, and

the relayed image is formed between the relay optical system and the imaging optical system in the camera head, and

wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system; and

the insertion section and camera head are detachable.

Claim 2 (Previously Presented): A rigid-endoscope as defined in claim 1, wherein said camera head including a view field mask, wherein said view field mask, said imaging optical system and said solid-state image sensor are constructed to be integrally moved along the optical axis in a focusing operation.

Claim 3 (Previously Presented): A rigid video-endoscope as defined in claim 2, further comprising a mask adjusting device for adjusting the position of said view field mask vertically

with respect to an optical axis to allow said view field mask to be focused into an image on the center of said solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 4 (Previously Presented): A rigid video-endoscope as defined in claim 2, further comprising a solid-state image sensor adjusting device for adjusting the position of said solid-state image sensor vertically with respect to an optical axis to allow said view field mask to be focused into an image on the center of said solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 5 (Original): A rigid video-endoscope as defined in claim 2, wherein said imaging optical system includes at least a cemented lens having positive power, two positive lenses and a single negative lens.

Claim 6 (Previously Presented): A rigid video-endoscope as defined in claim 1, wherein said camera head including a view field mask, wherein said part of said relay optical system is constructed to be moved along the optical axis in a focusing operation.

Claim 7 (Original): A rigid video-endoscope as defined in claim 6, further comprising a mask adjusting device for adjusting the position of said view field mask vertically with respect to an optical axis to allow said view field mask to be focused into an image on the center of said

solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 8 (Original): A rigid video-endoscope as defined in claim 6, further comprising a solid-state image sensor adjusting device for adjusting the position of said solid-state image sensor vertically with respect to an optical axis to allow said view field mask to be focused into an image on the center of said solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 9 (Original): A rigid video-endoscope as defined in claim 6, wherein said imaging optical system includes at least a cemented lens having positive power, two positive lenses and a single negative lens.

Claim 10 (Previously Presented): A rigid video-endoscope as defined in claim 1, wherein said camera head including a view field mask, and said imaging optical system including a front lens group and a rear lens group, wherein said view field mask and said front lens group are constructed to be integrally moved along the optical axis in a focusing operation.

Claim 11 (Original): A rigid video-endoscope system as defined in claim 10, wherein said view field mask is located substantially at the front focal point of said front lens group.

Claim 12 (Previously Presented): A rigid video-endoscope as defined in claim 10, which includes a mask adjusting device for adjusting the position of said view field mask vertically with respect to an optical axis to allow said view field mask to be focused into an image on the center of said solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 13 (Previously Presented): A rigid video-endoscope as defined in claim 10, which includes a solid-state image sensor adjusting device for adjusting the position of said solid-state image sensor vertically with respect to an optical axis to allow said view field mask to be focused into an image on the center of said solid-state image sensor without decentering from said center when said view field mask is focused into an image on said solid-state image sensor through said imaging optical system.

Claim 14 (Original): A rigid video-endoscope as defined in claim 10, wherein said imaging optical system includes at least a cemented lens having positive power, two positive lenses and a single negative lens.

Claim 15 (Original): A rigid video-endoscope system as defined in claim 1, wherein said front-end insertion section has an outer diameter of $\Phi 6$ or less.

Claim 16 (Original): A rigid video-endoscope system as defined in claim 1, wherein said front-end is rotatable with respect to said camera head.

Claim 17 (Original): A rigid video-endoscope system as defined in claim 1, wherein a plurality of said front-end insertion sections are selectively replaceable to said camera head.

Claim 18 (Original): A rigid video-endoscope system as defined in claim 1, wherein light beam is substantially parallelized between said front-end insertion section and said camera head.

Claim 19 (Cancelled).

EVIDENCE APPENDIX

No evidence under 37 C.F.R. § 41.37(c)(1)(ix) is submitted.

RELATED PROCEEDING APPENDIX

No decisions under 37 C.F.R. § 41.37(c)(1)(x) are rendered.